OPERATIONAL EXCELLENCE IN RELATION TO HIGH PERFORMANCE ENGAGEMENT AND QUALITY OF CARE AMONG EXECUTIVES IN THE HEALTHCARE SECTOR IN KERALA

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by

SINDHU S. NAIR
REGISTER NUMBER 1720078

Under the Supervision of
KENNEDY ANDREW THOMAS
Professor, School of Education

CHRIST
(DEEMED TO BE UNIVERSITY)
BANGALORE · INDIA

Sindhu S. Nair
Signature of Scholar

Signature of Supervisor

CENTRE FOR RESEARCH
CHRIST (Deemed to be University)
BENGALURU

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CENTRE FOR RESEARCH

Approval of PhD Synopsis

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Name of Scholar	Sindhu S. Nair
Department	School of Business and Management
Name of Supervisor	Kennedy Andrew Thomas
Names of Research Advisory Committee: 1. Uma V. R. 2. Ravi Kumar	
Name and Designation of External Reviewer If applicable	
Date of Synopsis Presentation	
Title of the PhD Thesis	Operational Excellence in relation to High Performance Engagement and Quality of Care among executives in the health care sector in Kerala
Approved by: Kennedy Andrew Thomas Uma V. R. Ravi Kumar	

Head of the Department

Date of Approval by Doctoral Committee

Director Centre for Research

Abstract

Background:

Operational Excellence (OE) is a philosophy of leadership, teamwork and problem solving, aiming to focus on the needs of the consumer, empowers employees, optimize existing activities, and results for continuous improvement and excellence. It is a competitive advantage which translates increased flexibility to improved consumer responsiveness, and lean management. Quality of care (QoC) is about patient safety, institutional culture, attitude, clinical performance, clinical freedom, with the management as facilitators, efficient delivery of quality, public funded services with high standards and best practices, effective patient outcome, integration of legislation with regards to communities, health service providers, local health authorities and the government (WHO, 2013). The outcome of quality of care is consumer or patient satisfaction. High performance Engagement (HPE) reflects how employees are engaged in their work, with commitment and passion, rather than mere compliance to impact performance. Health care is a balancing act between business excellence and quality outcomes in practice. It is from the premise of high performance engagement and quality of care provided to health consumers (patients) with patient centered focus for patient outcome and patient delight, that the pedestal of success in operational excellence is achieved and sustained.

Purpose:

This study focused on establishing Operational Excellence in relation to High Performance Excellence and Quality of Care among executives in the health care sector.

Method:

A descriptive study was carried out using quantitative method with a sample of 410 health care executives from NABH accredited and non-accredited hospitals and qualitative analysis among health consumers or patients, in Kerala, South India.

Results:

The results indicate an adequately strong positive correlation of operational excellence with high performance engagement and quality of care. The independent variables, high performance engagement and quality of care are significant predictors of operational excellence. Whilst the dimension of 'Training and Development' in Operational Excellence was highly correlated with high performance engagement, the dimension of 'Lean Health Care Management' of Operational Excellence highly correlated with Quality of care. The Qualitative method helped to bring out the lacuna in perceived and conceived care quality. Patient centered approach, value stream mapping and patient centered decisions are predominant determinants of quality of care; employee engagement and performance excellence leads to high performance engagement; Training and Development, Leadership and Employee Empowerment, Culture and Values, Perceived Excellence, Vanguard Technology, and Lean Health Care management are the predominant determinants of Operational Excellence in health care sector as perceived by health care executives.

Conclusion:

The results designate a promising support for patient centered quality of care with high performance engagement approaches in patient outcome or patient delight, for health care operational excellence. The health care management and leaders may envisage that a combination of high performance engagement and elevated quality of care resonates in overall

operational excellence in the health care sector and policy makers may discern that policy decisions must benefit all the stake holders especially the health consumers or patients.

Key words: operational excellence, quality of care, high performance engagement, healthcare

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1. INTRODUCTION

1.1. Health Care in India

Health care is emerging in India as one of the largest sectors in terms of employment and revenue. Healthcare consists of hospitals, medical devices, clinical trials, outsourcing, telemedicine, medical tourism, health insurance and medical equipment. India attracts a large share of medical tourism since the cost of surgery in India is about one-tenth compared to that of developed countries. The growth of Indian healthcare sector is at constant pace with ever increasing demand in health care, health coverage, health services, and both public and private expenditure.

1.2. Healthcare in Kerala

Kerala was a state which had high health indicators in comparison with other Indian states and other developed countries. In 2017, the government had entrusted expert panel to address people's health policy and core issues in the health care sector in the state. About 40, 000 new cancer cases are reported annually and the state thrives with vector borne, waterborne, airborne diseases throughout the year and thus hospitals are thronged by people. The health care has to focus on primary care and also disease prevention. Kerala's private healthcare sector accounts for 78 percent hospital beds. Ensuring 24/7 availability of doctors, nurses and paramedical staff in hospitals poses another greater challenge with the growing number of sick population. Kerala health care sector requires revamping and some groundbreaking changes.

1.3. Conceptual Framework

1.3.1. Operational Excellence

The operational excellence institute defines that operational excellence is attained when the value of the organization is understood by each employee, knows the process and thus is a structured and systematic approach to strive for sustainable excellent performance (Institute for Operational Excellence, 2016).

1.3.2. High Performance Engagement

This study conceives High Performance Engagement from IBM Corporation, defined as Performance Excellence and Employee Engagement (IBM Corporation, 2014).

1.3.3. Quality of Care

Quality of care is defined as the patient safety, institutional culture, attitude, clinical performance, clinical freedom, management as facilitators, efficient delivery of quality, effective patient outcome, integration of legislation with regards to communities, health service providers, local health authorities and the government (WHO, 2013).

1.4. Theoretical Framework

1.4.1. The Theory of Constrains (ToC)

ToC was conceived for operational excellence, over a period of time the concept has evolved, and even today is one of the mostly used techniques for operational excellence (Goldratt, 1984). ToC speaks about priority and how it can improve activities. This perspective implies that prioritization of activities, and removing any constraints can improve operational excellence

1.4.2. Engagement Theory

Kahn (1990) is the founding father of engagement. In his seminal paper on engagement he observes about the psychological conditions of personal engagement and disengagement at work and also describes both engagement and disengagement. This perspective explains that Employees tend to be disengaged easily while the work environment, leadership efficiency, and passion for the job improves engagement.

1.4.3. Theory of Performance

Elger (2007) proposed the theory stating, humans are capable of extraordinary accomplishments, and that performance is the production of valued results by an individual or group engaging in a collaborative effort. This theory elaborates that each individual has the potential to perform to excel whilst motivation, collaboration and engagement can bring in higher performance levels

1.4.4. Systems Theory for Quality of Care.

Bertalanffy (2015) stated that a set of complex elements make a system which is open to interaction to acquire new properties, emerging and evolving through self-regulation. System thinking helps in thinking as part of a whole and whole of a part. Hospital departments cannot exist and work in silos, thus mandating hospitals to be collaborative with cooperative effort from each department to bring in results for health consumers.

2. NEED FOR THE STUDY

The prime reasons for this study are stated in this section. In health care, despite the growing competition in the health service sector for operational excellence, literature reveals that there are very minimal or almost no empirical confirmation on operational excellence models in the

Indian health care context. Secondly to empirically study variables that is significant to be practiced. The main variables of the study, Operational Excellence (OE), High Performance Engagement (HPE), and Quality of Care (QoC), are identified as crucial for service assessment.

Scarce studies on OE, HPE and QoC, wherein the combination of OE, HPE and QoC have not been explored in the health care sector, and will help to provide a broader perspective for health care management.

Studies on high performance engagement in the health care context is notional. Existing literature review disclosed that the variables, OE and HPE though studied in the other industries, is almost non-existent in the health care sector. Implications of this study is that the concept of OE, HPE and QoC will have high impact in the health care sector, through the practical application of the key indicators of these concepts in the health care sector.

Patient-centric approach; Health care has to focus on patient outcome and thus have to be patient-centered. The qualitative study among patients, will bring new perspectives to identify the gap between perceived and conceived quality of care. This study aspires to bring new insights to existing studies in the health care sector.

3. REVIEW OF LITERATURE

3.1 Studies Related to Operational Excellence

The concept of operational excellence is vital to health care organizations and attempt is to identify operational excellence in relation to high performance engagement of health care employees and quality of care to patients. The review of related literature helped in identifying key indicators of the variables. Studies related to operational excellence, high performance engagement and quality of care were reviewed. Few studies are given below. The global research survey on business transformation and

operational excellence (Proqis, 2018) brought out a statement that transparency and excellent services are attained through lean operations. Operational excellence emerges from the confidence an Organization (any sector), achieves through its steady, efficient processes with a competitive advantage. This survey points out that the balance act of Patient care, Performance engagement, cost efficient processes, growth and profitability brings in transformation in terms of operational excellence which is sustainable. The transformation of managers to leaders should happen through a culture shift, with the right people with the right skills, in the right place, who are willing and capable to implement the right approach at the right time in right measure. The characteristics of operational excellence is exhaustive but definitely should include, flexibility, adaptability, and expertise on core processes and methodologies, which includes lean management, process modelling, automation processes, business process management, technology and transformation, robotic processes, cloud computing, operating models, cultural awareness, transformation and change management.

(Proqis, 2018) reported operational excellence as a magic formula used by top executives in a generic way to make understand their staff that they are not performing the optimal way. There are various layers in this term. Operational Excellence as such is not a new concept since such initiatives were deployed by big players in the market. But the catch is, it is wrongly believed that achieving operational excellence is only through following a standardized path. Thus operational excellence can be an integral part of Research and Development, Risk and Compliance.

To maintain operational excellence and for cultural changes the key elements mentioned (Proqis, 2018) follow an organizational process with a pilot of the transformation process, with quick proof of results to gain top

management support, large scale deployment by selecting and managing improvement initiatives and continuous improvement, building teams of top talents to deploy operational excellence, reward and recognition with trust in people for employee buy-in, and integration of the way of right doing. The fact of the matter (Proqis, 2018) reiterates that the precaution that is often forgotten is 'drive back', that is if the transformation is not successful, to go back to the initial state to think over the strategies to find the root cause of failure; to motivate and back up teams.

Sustainability of improvements and culture change of organizations are still difficult even after quite important investments. The difficulties encountered are due to the fact that too much external resources are used. Autonomy of methodology cannot be attained by extensive use of external resources. Transformation has to be driven by internal talents. External hires can be add-ons but these external resources must be strictly chosen so that they share the organization values. Employees would discuss concerns openly with internal consultants than external.

Operational excellence helps to grow organizational processes and technology. It is the state of readiness and a precursor for a high performing organization (Paris Jr., 2017). But unhealthy culture may hinder further growth and becomes an obstacle for operational excellence and requires high commitment and patience to rebuild.

Summary of studies related to Operational Excellence, reveal many aspects of the perception. The review has helped to ascertain that operational excellence is about leadership, culture, exceeding consumer requirements and expectations, transformation through skill development, technological development and evolving through all these processes.

3.2. Studies Related to High Performance Engagement

Leaders have to constantly find out the lead and the lag for performance engagement, total number of engaged and disengaged workers, and also, an engaged workforce should be in the priority list of leaders, eliminating reasons for disengagement through behavioural strategies continuously. This in turn will bring in profitability and a competitive advantage. This is not easy and sustainable but if not taken care off, organizations cannot excel. Managers mushrooming out of business schools feel confused about the concepts they learn, the practical differences and use their instinct to motivate employees. The contemporary management (Jones & Rudd, 2008) defines leadership as the process an individual exercise and influence over others to inspire, motivate and direct their activities to help achieve group or organizational goals.

Employees want to contribute to organizations which they are proud off, they strive to achieve competencies required for a job, and find satisfaction for the same (Simons, 2013). The bounded rationality and cognitive limitations enforce psychological insights for desired behaviours (O'Leary, Bingham & Choi, 2010), which explains the common employee behaviours of performance, based on consequences, altered for favorable and unfavorable consequences, affecting their performance and getting disengaged in the long run. Disengaged employee slowly gets indifferent or aggressive and is likely to leave, with a clear correlation between employee disengagement and turnover (Saks, 2006; Sundaray, 2011).

Hoisington (2018) suggested on operational excellence quality and safety, that cultural transformation is the greatest challenge of any organization and a holistic approach to operational excellence is required for organizational improvement which is in turn required for cultural transformation. Hoisington (2018) affirmed that performance excellence has

been the pillar of operational excellence with a customer focused environment, knowing and understanding the customer expectations and requirements focusing on these to deliver the requirements with key metrics to monitor performance leading to customer delight, validating progress against the customer important needs.

In their edition of employee engagement report (TINYpulse, 2017) from the responses of over a million anonymous employees, from about 1000 organizations, all over the world, revealed that a happier employee refer talent more effectively. There was 11% drop from 2016 in the number of employees who felt connected to work place and colleagues, whilst 27% said organization is trying for team building efforts, but management's failure to foster cross-functional relationships increases the gap between departments. Only 26% surveyed felt valued at their workplace which was a drop of 16% from receiving recognition from superior in the last two weeks with no deserving recognition or if received as late recognition. 49% only believe they have a clear career path opposed to 62% of their managers who believe the same career development opportunities are adequate only for 26% of employees as opposed to 50% of managers. Only 25% of employees feel their management is transparent compared to 42% of managers' perception of the same. Only 21% of employees believe that the performance review process in their company is good. The report concludes that "every leader wants to bring out the best in their employees and have a high performance team but in order to do so; you need to start making the necessary changes to build a stellar workplace where employees thrive".

Levenson (2017) stated that high performance engagement is applying extra energy, time and persistence to accomplish stretch goals. This high performance engagement is achieved through the right mix of motivation (engagement), skills (competencies) and job design (role and

responsibilities). Motivation and competencies are catered to some extend in organizations, but job design which is equally important receives less attention (Levenson, 2017).

Saks (2006) identified the duality of employee engagement which is not only distinct but also complimentary and understanding this duality of engagement enables employees to improve the levels of employment. Every year organizations spend resources for improving employee engagement, yet if you ask managers, leaders, consultants and academics, what that means, still the answers are inconsistent, ranging from the simple 'discretionary effort' to the complex network of 'trait, state and behavioural constructs' which is due to the fact that engagement needs to be deeply pondered into; whilst it is yet to be managed, if it exists, it has to be enhanced.

3.3. Studies Related to Quality of Care

The business transformation and operational excellence reports (Burdick, 2018) observed that at the top of the list (53.1%) of critical challenges is changing the culture and that health care faces unique challenges since clinical care is labor intensive with huge involvement of employees involved in performance of different interdependent functions with a key role being that of the physician.

WHO (2017) stated that Patient care must understands the patient, their problem and what is important for them and Capacity is the Infrastructure, Patient care facilities, Technology, and Resources. Institute of Medicine (IOM, 2013) established that in India, hospitals worldwide face strong demands for high quality and efficient care and hence needs coordination of work with external stakeholders, private doctors, clinics and the like to ensure internal hospital operations are highly integrated. For example, multiple trauma injuries call for interdependencies of health care providers, complex healthcare supply chain and patient complexity,

fragmented care processes (Gulati, Wohlgezogen & Zhelyazkov, 2012). It was comprehended and affirmed that, though coordination is difficult to achieve, it is imperative to provide high-quality efficient care (Hofmarcher, Oxley & Rusticelli, 2007).

The factors for high quality health care are informed judgment, common sense theory, continuous quality improvement, cooperation with health care purchasers, alignment of financial incentives and appropriate capitation, patient involvement, managed care and quality measurement, quality as a destination to quality improvement as a journey (Enthoven & Vorhaus, 1997). The health care system reflects the values adopted by a society and the ways in which it has chosen to conduct its affairs (Donabedian, 1996). This is displayed in the U.S. health care system reforms and improvement, wherein a managed care environment is constantly sustained, involving health plans, consumers and purchasers, measuring and ensuring quality.

It was observed that one in ten patients is seriously affected during treatment in some high income countries and seven in hundred in-patients develop care associated infections, whilst in some developing countries it is one in ten (Slawomirski, Auraaen & Klazinga, 2017). The crux is that these infections can be easily avoided by practicing better hygiene and careful use of antimicrobials (Pittet & Donaldson, 2005). Many patients do not receive required and appropriate evidence-based care and variations in health care delivery persists (McGlynn et al., 2003; Runciman et al., 2012).

Poor quality health care contributes to disease burden and health needs with cost implications for patients and mostly affects the vulnerable groups causing long term disability, impairments (Slawomirski, Auraaen & Klazinga, 2017). Organization for Economic Cooperation and Development (OECD) reported about the need for reform to meet the challenges of ageing

and multiple morbidities (OECD, 2011). OECD reports and indicators stated that poor quality of care leads to ineffective care which in turn leads to duplicate services and repeated hospital admissions wasting resources which could otherwise be deployed effectively (OECD, 2017).

3.3.1. Perceived and Conceived Quality of Care.

The director of a patient lead organization narrated that when she had bad rheumatoid arthritis and spent a lot of time in bed, she realized that what she had been promoting as health administrator was far different from what she needed as a patient (Rodriguez, n.d.). After her illness, she explained that the expected quality care as equilibrium between clinical best practices and what is best for the patient needs to be determined with the patient, since we do not always need doctors who have all the answers but we need people who understand how we are coping with our condition. She affirmed that the felt need of the patient suffering from chronic conditions having high impact on daily life to feel in control of the given treatment to know what to achieve, to understand if it can be achieved and to receive the help to do so is the quality care expected. Rodriguez explained that health care systems tends to be gearing towards acute illnesses treatment and rarely help patients with lifelong diseases to overcome the hurdles of daily life. Sometimes patients have to travel extensively or wait longer duration to get prescription drugs. Investments in teaching self-management processes can reduce health care costs.

3.3.2. Universal Health Coverage by 2030

The global imperative for Universal Health Coverage (UHC) to deliver quality health services, by World Health Organization, Organization for Economic Co-operation and Development, and International Bank for Reconstruction and Development revealed that commitment and sustainable

development goals is to achieve, the Universal Health Coverage by 2030 (WHO, OECD & IBRD, 2018). This aspires that all people and communities around the globe will be able to access to high quality health services as per their need whether it is promotive, preventive, curative, rehabilitative or palliative without much hardships.

The review indicates the need for more in-depth empirical and scientific research for quality of care given to patients, patient and family expectations of care, process and policy revisiting to improve quality of care and patient centered quality and outcome measures. Cultural differences in the health sector is very evident in the reviewed literature which clearly indicates the considerations for poverty, below the poverty line citizens, and geographical locations of rural-urban divide for broader understanding and further research studies. Empathy, Compassion and Care quality are synonymous.

The review helped to find that operational excellence and high performance engagement and also a combination of the variables along with quality of care are less explored in this sector and a combination of the three variables in the health care sector does not exist.

4. OBJECTIVES OF THE STUDY

The objectives of the study are:

- To find the relationship between Operational Excellence and High Performance Engagement
- To study the relationship between Operational Excellence and Quality of Care
- To determine significant predictors of operational excellence through high performance engagement and quality of care
- To identify the differences across background variables of Operational

- excellence, High Performance Engagement, and Quality of Care
- To study the quality of care experienced by health consumers

5. VARIABLES OF THE STUDY

The study considers 3 variables; High Performance Engagement, Quality of Care and Operational Excellence.

- Operational Excellence – Dependent Variable
- High Performance Engagement – Independent Variable
- Quality of Care – Independent Variable
- Gender, Age, Experience of the health care executives and number of hospital beds are the background variables.

6. OPERATIONAL DEFINITIONS

The operational definitions are based on the Review of Literature, and the preliminary Exploratory Study conducted by the Researcher. The definitions used for the purpose of this study are as follows:

- **Operational Excellence:**

In this study Operational Excellence (OE) is the improved and sustainable excellence outcome achieved by the organization through efficient people, processes, technology, team and inter department synergy, evidence based solution implementation and patient centric approach.

- **High Performance Engagement:**

In this study, High Performance Engagement (HPE) refers to application of extra effort, full potential, high energy, persistence, enthusiasm, dedication, commitment, willingness, shared vision and goal orientation individually and as a team to achieve excellence as perceived by the executives

- **Quality of Care:**

In this study, Quality of Care is the desired care outcome and patient experience through positive attitude, empathy and patient centered approach.

- **Executives:**

In this study Executives refer to Managers/Supervisors relating to each department within the hospital.

- **Background variables:**

In this study Background variables refer to gender, age, and experience of the executives along with number of hospital beds.

7. HYPOTHESES

The hypotheses for this study are given below.

- **Set I Hypotheses (Correlation)**

1. There is no significant relationship between operational excellence and high performance engagement
2. There is no significant relationship between operational excellence and Quality of Care
3. There is no significant relationship between the dimensions of operational excellence and and high performance engagement
4. There is no significant relationship between the dimensions of operational excellence and quality of care

- **Set II Hypotheses (Regression)**

5. High Performance Engagement would not be significant predictor of operational excellence
6. Quality of Care would not be significant predictor of operational excellence

- **Set III Hypotheses (Testing Differences)**

7. There is no significant difference in the operational excellence scores with respect to gender (male and female) of hospital executives
8. There is no significant difference in the high performance engagement scores with respect to gender (male and female) of hospital executives
9. There is not significant difference in the quality of care scores with respect to gender (male and female) of hospital executives
10. There is no significant difference in the operational excellence scores with respect to age of hospital executives
11. There is no significant difference in high performance engagement with respect to age of hospital executives
12. There is no significant difference in the quality of care scores with respect to age of hospital executives
13. There is no significant difference in the operational excellence scores with respect to experience of hospital executives
14. There is no significant difference in the high performance engagement scores with respect to experience of hospital executives
15. There is no significant difference in the quality of care scores with respect to experience of hospital executives
16. There is no significant difference in the operational excellence scores with respect to hospitals beds
17. There is no significant difference in the high performance engagement scores with respect to hospitals beds
18. There is no significant difference in the quality of care scores with respect to hospitals beds

- **Set IV Test of repeated measures to test differences in measures**

19. Operational excellence will not be affected for significant differences in the High performance engagement

20. Operational excellence will not be affected for significant differences in the Quality of care
21. High performance engagement and Quality of care do not account for significant differences in operational excellence

- **Set V Hypotheses (Testing Main Effect and Testing Interaction Effect for Main variables)**

22. Levels of high performance engagement do not account for significant differences in the operational excellence among hospital executives
23. Levels of quality of care do not account for significant differences in the operational excellence among hospital executives
24. The interaction effect of high perfection engagement and quality of care do not account for significant differences in the operational excellence among hospital executives

8. DESIGN OF THE STUDY

The study is descriptive using quantitative technique of survey method and qualitative study method. The primary data for quantitative method was collected from health care executives using tools that were developed and standardized by the researcher. Qualitative data from health consumers or patients were collected using semi structured interviews.

Overview of the research design:

Design of the study: Descriptive

Data collection: Primary Quantitative data was collected from health care executives through survey method using tools developed by the researcher. Qualitative data from patients were collected using semi structured interview.

Population: Health care executives in the health care sector in Kerala

Sampling Frame:	Sampling Units; Major Districts with at least 4 NABH hospitals and multispecialty hospitals in the same district
Sampling Universe:	Kerala
Samples:	Executives from Hospitals
Sampling Design:	Probability sampling technique of stratified random sampling
Sample size:	Require sample responses-383, collected responses - 410
Statistical Tools:	SPSS, R, Real Data Statistics and AMOS was used for quantitative and NVIVO 11 was used for Qualitative analysis
Statistical Analysis:	Descriptive Statistics, Reliability Analysis, Correlation Analysis, Test of Normality, Exploratory Factor Analysis, Multivariate Regression, Mann-Whitney U Test, Kruskal-Wallis Test, Friedman Test, Scheirer-Ray-Hare Test, Measurement model through path diagram
Qualitative Analysis:	Coding, identifying Nodes, forming themes, clusters and word cloud using NVIVO 11

9. SAMPLING TECHNIQUE

9.1. Procedure:

Probability sampling technique of Stratified Random Sampling was used for this study to select samples from the population, to derive sample representation. A cross sectional data was required from the state of Kerala.

Using Multiple Classification (Sinha & Dhiman, 2002) based on the purpose of enquiry and condition of groups, Districts with at least 4 NABH

accredited hospitals and major districts are considered. In the same districts, Non-NABH accredited Multi-Specialty hospitals were included. Thus conditional series of data were collected. As per the sample calculation table, (Krejcie & Morgan, 1970) for a population of one lakh, the number of respondents required is 383. Final sample collected was 410.

9.2. Method:

The Universe of the study was grouped by the demarcating feature of satisfying minimum number of 4 NABH accredited private hospitals and major districts. The sub units were non-overlapping and exclusive. Stratified Sampling was used since the sub populations varied. The executives of the population were stratified into subgroups to define the partition of the population of private hospitals as NABH accredited private and non-accredited multi-specialty hospitals. From this strata, consisting of proportionate number of Executives representing the total population of Executives, the sampling was carried out using simple random sampling.

9.3. Steps in Sampling:

To best capture the trends that existed in re-stratification, it was important to examine districts that had substantial enough population to represent NABH hospitals. Therefore, the metropolitan areas of four districts were used. From district-1, consisting of four NABH accredited private hospitals, 19 samples were included for the study. From district-2, consisting of thirteen NABH accredited private hospitals, 67 samples were chosen. From district-3, out of four NABH accredited private hospitals, 29 samples were selected. From the 4th district with five NABH accredited hospitals, 18 samples were considered for the study. Thus 133 samples from NABH accredited private hospitals were considered. Subsequently, from multispecialty non-NABH hospitals from district-1, 72 samples were

selected, from district-2, 88 samples were chosen, from district-3, 92 samples were considered, from district-4, 25 samples were selected. Thus 277 samples from Non-NABH Multispecialty hospitals were considered totaling to 410 (133+277) samples.

The completion of the final screening included the samples from 4 major districts, encompassing 25 NABH accredited private hospitals and 78 non-NABH multispecialty private hospitals. Therefore 410 health care executives were considered though the required number was 383 representative samples from 30456 executives across the state representing 93.65 % of all of the Kerala's hospital executives from four districts. Districts excluded from the study, failed to satisfy the inclusion criteria of minimum number of NABH accredited private hospitals. The method of sampling was pen and paper through direct approach. The respondents were requested to fill the Proforma, the Operational Excellence Scale (OES with 15 items), High Performance Engagement Scale (HPES with 22 items) and Quality of Care Scale (QoCS with 21 items).

9.4. Data from NABH Accredited Private Hospitals

In district-1, the 1520 hospital executives from NABH accredited private hospitals (hospital-1, hospital-2, hospital-3, hospital-4) from each department were numbered continuously from 1 to 1520 and using lottery method 19 numbers were picked up at random. The numbers picked up were traced back to the respective departments in the corresponding hospitals. The hard copy of the proforma along with the three questionnaires, Operational Excellence Scale (OES), High Performance Engagement Scale (HPES), and Quality of Care Scale (QoCS) were given to each respondent and requested to fill all the questions.

In district -2, the 4940 hospital executives from NABH accredited private hospitals (hospital 1 to hospital 13) from each department were

numbered continuously from 1 to 4940 and 67 numbers were picked up at random.

In district-3, the 1925 hospital executives from NABH accredited private hospitals (hospital 1 to hospital 4) from each department were numbered continuously from 1 to 1925 and 29 numbers were picked up at random. In district-4, the 1400 hospital executives from NABH accredited private hospitals (hospital 1 to hospital 4) from each department were numbered continuously from 1 to 1400 and 18 numbers were picked up at random. Then the numbers picked up were traced back to the respective departments in the corresponding hospitals.

9.5. Data from Non-Accredited Private Hospitals

In the same districts were NABH accredited private hospitals were selected, the non-accredited multispecialty hospitals were chosen for the study. In district-1, the 5720 hospital executives from Non-NABH multispecialty private hospitals (hospital 1 to hospital 28) from each department were numbered continuously from 1 to 5720 and 72 numbers were picked up at random. Then the numbers picked up were traced back to the respective departments in the corresponding hospitals. The hard copy of the proforma along with the three questionnaires, Operational Excellence Scale (OES), High Performance Engagement Scale (HPES), and Quality of Care Scale (QoCS) were given to each respondent and requested to fill all the questions without omission. Similar process was carried out in each non-accredited multispecialty hospital of district-1. In district-2, the 6380 hospital executives from non-accredited multispecialty private hospitals (hospital 1 to hospital 29) from each department were numbered continuously from 1 to 6380 and 88 numbers were picked up at random. In district-3, the 6600 hospital executives from non-accredited multispecialty private

hospitals (hospital 1 to hospital 12) from each department were numbered continuously from 1 to 6600 and 92 numbers were picked up at random. In district-4, the 1980 hospital executives from non-accredited multispecialty private hospitals (hospital 1 to hospital 9) from each department were numbered continuously from 1 to 1980 and 25 numbers were picked up at random.

9.6. Qualitative study

A qualitative study among Patients for 'Quality of Care' experienced. The total number of executives from NABH accredited private hospitals is 133 and non-accredited multispecialty hospitals is 277. Ten percent of each that is 13 patients from NABH accredited private hospitals and 27 patients from Non-NABH multispecialty hospitals (total of 40 patients) were interviewed using semi structured interview questions and discussions, about their experience of the quality of care received from NABH accredited and non-accredited hospitals.

10. TOOLS USED FOR COLLECTION OF DATA

All the three measurement tools used to collect data for this study were developed by the researcher and standardized using validation and reliability process. Thus reliable and valid tools adequately developed for the study (Table 1) was used to measure the three main variables namely Operation Excellence, High Performance Engagement and Quality of Care. All the three tools used a 5point Likert scale with measures 'Always to Never'.

The tools used in this study are

- Operational Excellence Scale with 15 items and reliability alpha 0.906, to measure the dependent variable operational excellence
- High Performance Engagement Scale with 22 items and reliability alpha 0.917 to measure the independent variable high performance engagement

- Quality of Care Scale with 21 items and reliability alpha 0.925 to measure the independent variable Quality care.

Table 1. Reliable Final Instruments

Scale	Number of Items	Cronbach's Alpha
Operational Excellence (OE Scale)	15	0.906
High Performance Engagement (HPE Scale)	22	0.917
Quality of Care (QoC Scale)	21	0.925

11. VALIDATION PROCEDURES

The tools used to measure the three constructs of this study were developed by the researcher on the basis of literature review and a preliminary exploratory study conducted by the researcher in the health care sector. These tools were subjected to validation and reliability process for standardization.

11.1. Content Validity:

The items in the tools were formed from the conceptual and theoretical framework, then mapping these themes from the the preliminary exploratory study conducted by the researcher, related review of literature, and operational definitions. The drafts of Operational Excellence (OE) Scale (154 items), High Performance Engagement (HPE) Scale (182 items), Quality of Care (QoC) Scale (110 items) were sent to experts for validation. After expert validation, the OEScale was reduced to 54 items, HPEScale was reduced to 34 items and QoCScale was reduced to 45 items.

11.2. Face Validity:

The tool was assessed for face validity from health care experts and

the tool was modified with minor changes for face validity. The questionnaire was given to health care employees to assess face validity. Inter-Item correlation was conducted and the OEScale retained 38 items, HPEScale retained 34 items and QoCScale retained 42 items.

11.3. Construct Validity:

The tool was subjected to Exploratory Factor Analysis using Principal Component Analysis with Varimax rotation. The factor analysis explains the average variance extracted by the indicators of the construct. The minimum level of average variance (Fornell & Larcker, 1981) extracted and retained were 0.50.

In this study after factor analysis the constructs of the study that indicated average variance of 0.60 were retained which confirms construct validity of the tools used. The average variance explains the convergent validity.

11.4. Factor Extraction and Divergent Validity:

The factor analysis helped to extract 6 factors and the principal component analysis explains the divergent validity of the tools used. If the factor loadings of the construct indicators load heavily on different factors, then the constructs are different (Straub, 1989).

12. FIELDWORK DETAILS

A pilot study was conducted among 80 respondents. Tools were subjected to validity and reliability. The Scales were modified after validation and administered among 410 health care executives from NABH accredited and non-accredited multispecialty hospitals in Kerala. The hospitals were selected from districts with at least 4 minimum NABH accredited hospitals and non-accredited multi-specialty hospitals were

selected from the same districts. Institutional ethical clearance was obtained and the participants were given informed consent and confidentiality agreement that the data will be used only for this study. Experience from health consumers or patients were collected using semi structured interviews for qualitative study. The participation for both the quantitative and qualitative study were voluntary. The target sample required for the study was 384 and the collected sample was 410 (Table 2).

Table 2 Stratified Samples in the present study

Strata	Sample NABH (a)	Actual Sample	Sample Non-NABH (b)	Actual Sample	Total Sample (a) + (b)	Actual Sample
District 1	19*	19**	72*	72**	91*	91**
District 2	62*	67**	80*	88**	142*	155**
District 3	24*	29**	83*	92**	107*	121**
District 4	18*	18**	25*	25**	43*	43**
Total	123*	133**	260*	277**	383*	410**

*Targeted sample ** Actual registered sample

13. STATISTICAL TECHNIQUES

The statistical tests applied for quantitative analysis to understand the data are given below:

- **Reliability Test:** Cronbach's alpha was used to test the reliability of the scales.
- **Inter-Item Correlation**: Inter-Item correlation was used for item correlation for scale items
- **Exploratory Factor Analysis:** To extract factors using principal component analysis with Varimax rotation.

- **Descriptive Statistics.** Measures of dispersion, Mean, Standard Deviation, Central Tendency, Frequency distribution were used to understand the characteristics of the data.
- **Test of Normality:** The data was subjected to test of normality to understand the distribution nature of the date. Skewness and Kurtosis was tested, histograms and Q-Q plots were plotted. It was found that the data deviated from normality. Hence Non-parametric tests were conducted.
- **Spearman's Rank Correlation.** To assess the monotonic relationship between the variables
- **Multivariate Regression.** To assess the influence of independent variables on the dependent variables
- **Mann-Whitney U Test.** To test the significant differences among variables
- **Kruskal-Wallis Test.** To test significant differences in the distribution of demographic variables
- **Friedman Test.** To test the difference in measures of the variables
- **Scheirer-Ray-Hare Test.** To test the main effect and interaction effect of the variables.
- Path Diagram to illustrate the actual relationship between the research variables
- **Qualitative Analysis.** Coding to form Nodes and sub-nodes to create themes based on the nodes and word clusters using NVIVO 11 for the qualitative interviews.

Data analysis exhibits the detailed analysis and inference of the test results, on the sample data for the study. The sample size obtained was 410 and the adequacy of this was tested using KMO and Bartlett's test of

sphericity for larger representation. The sample represents the gender inclusive executives in the health care sector (NABH accredited and non-accredited hospitals) from Kerala, South India. The female representation was 41.2% and male representation 58.8%. The hospitals were selected through stratified sampling and samples were selected through simple random sampling to represent equal proportions from NABH accredited and non-accredited sectors. The objectives of the research were to find the relationship of the dependent variable operational excellence, towards the independent variables, high performance engagement and quality of care, to determine the significant predictors of operational excellence, to identify the difference across demographics of age, gender, experience, and hospital beds, and to find the conceived quality of care from patients.

13.1. Quantitative Analysis

13.1.1. Descriptive statistics

Test of Normality was carried out (Table 3) and found that the data deviated from Normality (P=.000). The distribution of the total score of operational excellence is falling in the range of 29 to 71, where the mean distribution is 53.14 median score is 57.00. The standard deviation is 11.158. The frequency distribution depict that the higher scores are at the interval of 60, 65 and 66 to and the maximum frequency of the total scores of operational excellence are also at the interval of 60, 65 and 66. The quality of care scores for each respondent was computed. The distribution scores of quality of care ranges from 54 to 99, with a mean of 82.69, median at 88.00, and standard deviation at 13.518.

Table 3. Test of Normality

Tests of Normality						
	Kolmogorov-Smirnov[a]			Shapiro-Wilk		
	Statistic	df	Sig.	Statistic	df	Sig.
Operational Excellence	.146	410	.000	.908	410	.000
High Performance Engagement	.210	410	.000	.846	410	.000
Quality of Care	.179	410	.000	.862	410	.000

13.1.2. Skewness and Kurtosis.

The skewness and kurtosis were -.721 and -.946 (Table 4).

Table 4. Skewness and Kurtosis

Variables	Skew-ness	Std. Error of Skewness	Test of normality	Kurtosis	Std. Error of Kurtosis	Test of Normality
OE	-.362	.121	2.99	-1.306	.240	5.44
HPE	-.969	.121	8.01	.415	.240	1.73
QoC	-.721	.121	5.95	-.946	.240	3.94

13.1.3. Correlation Analysis

The correlation coefficient of Spearman's rank $r_s = .523$, $p < .01$ is statistically significant, (Table 5) the direction is positive, relation is adequately strong and the value of .5 indicates large association. The significant result indicates that when there is an increase in the scores of operational excellence, there will be an increase in the high performance engagement scores.

The spearman's rank correlation coefficient $r_s = .466$, $p<0.01$ indicates a significant relationship between the scores of operational excellence and quality of care. The statistical significance also shows that when the scores of operational excellence increases, the quality of care also increases.

Table 5. Results of Correlational Analysis

Variables	Operational Excellence			
	N	Df	P	Significance
High Performance Engagement	410	408	.523**	0.000**
Quality of Care	410	408	.466**	0.000**

**p<0.01 level (2-tailed).

13.1.4 Dimensions of Operational Excellence

The spearman's rank correlation coefficient (Table 6), $r_s=.624$, $p=.000<.05$ indicates positive statistically significant relationship between the dimension Training and Development of Operational Excellence with high performance engagement.

The spearman's rank correlation coefficient (Table 6) $r_s=.447$, $p=.000 <.05$, indicates that there is a positive statistically significant relationship between the dimension, Leadership and Employee Empowerment of Operational Excellence and high performance engagement.

The spearman's rank correlation coefficient (Table 6) $r_s=.421$, $p=.000<.5$, depicts there is a positive statistically significant relationship between the dimension, Culture and Values of Operational Excellence and high performance engagement.

The spearman's rank correlation coefficient (Table 6) $r_s=.435$, $p=.000<.5$, indicates that there is a positive statistically significant relationship between the dimension, Perceived operational excellence and high performance engagement.

The spearman's rank correlation coefficient (Table 6) r_s=.410, p=.000<.5, indicates that there exists a positive statistically significant relationship between the Vanguard Technology dimension of Operational Excellence and high performance engagement.

Table 6. Results of Correlation of HPE with Dimensions of OE

Dimensions of Operational Excellence	Correlation of HPE with OE			
	N	Df	P	Significance
Training and Development	410	408	.624	.000
Leadership and Employee Empowerment	410	408	.447	.000
Culture and Values	410	408	.421	.000
Perceived Excellence	410	408	.435	.000
Vanguard Technology	410	408	.410	.000
Lean Health Care	410	408	.257	.000

The spearman's rank correlation coefficient (Table 6) r_s=.257, p=.000<.5, exhibits a positive statistically significant relationship between the dimension, Lean health care of Operational Excellence and High Performance Engagement.

The spearman's rank correlation coefficient (Table 7) r_s=.271, p=.000<.05 indicates positive statistically significant relationship between the dimension Training and Development of Operational Excellence with quality of care.

The spearman's rank correlation coefficient (Table 7), r_s=.403, p=.000 <.05, indicates that there is a positive statistically significant relationship between the dimension, Leadership and Employee Empowerment of Operational Excellence with quality of care.

The spearman's rank correlation coefficient (Table 7) r_s=.399, p=.000<.5, depicts there is a positive statistically significant relationship

between the dimension, Culture and Values of Operational Excellence and quality of care.

The spearman's rank correlation coefficient (Table 7) r_s=.480, p=.000<.5, indicates that there is a positive statistically significant relationship between the dimension, perceived operational excellence and quality of care. The spearman's rank correlation coefficient (Table 7) r_s=.472, p=.000<.5, indicates that there exists a positive statistically significant relationship between the Vanguard Technology dimension of Operational Excellence and quality of care.

The spearman's rank correlation coefficient (Table 7) r_s=.509, p=.000<.5, exhibits a positive statistically significant relationship between the dimension, Lean health care of Operational Excellence and quality of care.

Table 7. Results of Correlation of QoC with OE

Dimensions of Operational Excellence	Correlation of QoC with OE			
	N	Df	P	Significance
Training and Development	410	408	.271	.000
Leadership and Employee Empowerment	410	408	.403	.000
Culture and Values	410	408	.399	.000
Perceived Operational Excellence	410	408	.480	.000
Vanguard Technology	410	408	.472	.000
Lean Health Care	410	408	.509	.000

13.1.4. Multivariate Regression Analysis

The conditions for carrying out multivariate regressions namely, normality of independent variables, linearity, homoscedasticity,

independence of standardized residuals versus predicted constants, and absence of multicollinearity. The F ratio testifies the model as a good fit.

The independent variables, high performance engagement and quality of care are statistically significant at F (2, 407) = 140.549, p=.000<.05. R=.639 (Table 8), implies the correlation and R^2= .409 indicates that the model predicts 40.9 % of the variation out of the total variation of the regression line.

Table 8. Results of Regression Analysis

Model	R	R Square	Std. Error of the Estimate	Durbin-Watson
1	.639[a]	.409	8.602	.681

a. Predictors: (Constant), Quality of Care, High Performance Engagement, Dependent Variable: Operational Excellence

The multiple regression analysis of high performance engagement and quality of care (Table 9) indicates that the p values significant at p<.05 indicate that high performance engagement and quality of care are significant predictors of operational excellence.

Table 9 Results of Regression Analysis for Predictors

Model	Unstandardized Coefficients		Standardized Coefficients	T	Standardized Coefficients
	B	Std. Error	β		β
constant	10.959	2.641		4.149	.000
HPE	.273	.050	.377	5.417	.000
QoC	.239	.057	.290	4.162	.000

13.1.5. Mann Whitney U Test

This test was applied to analyze the differences in the mean ranks of operational excellence, high performance engagement and quality of care, between male and female executives in the health care sector. Both for male and female the mean ranks differed marginally for the variables, operational excellence, high performance engagement and quality of care. There was no statistically significant difference (Table 10) among male and female p>.05.

Table 10. Results for Mann-Whitney U Test

	Gender	N	Mean Rank	Sum of Ranks
Operational Excellence	Male	241	205.88	49616.00
	Female	169	204.96	34639.00
	Total	410		
High Performance Engagement	Male	241	200.81	48395.00
	Female	169	212.19	35860.00
	Total	410		
Quality of Care	Male	241	202.73	48859.00
	Female	169	209.44	35396.00
	Total	410		
	Operational Excellence		High Performance Engagement	Quality of Care
Mann-Whitney U	20274.000		19234.000	19698.000
Wilcoxon W	34639.000		48395.000	48859.000
Z	-.077		-.958	-.565
Asymp. Sig. (2-tailed)	.939		.338	.572

13.1.6. Kruskal-Wallis Test

The Kruskal-Wallis Test is used to analyze the effects of more than two levels of just one factor on the experimental result. The mean ranks are not similar across the age towards operational excellence (mean rank highest for the age above 45 years), high performance engagement (mean rank highest for age between 26-29 years) and quality of care (mean rank highest for age between 40-44 years).

The Kruskal-Wallis test statistics for age (Table 11) showed that there was significant difference in age and the distribution of operational excellence scores ($H=27.002$, $p=.000<.05$), high performance engagement ($H=16.312$, $p=.003<.05$), quality of care ($H=27.987$, $p=.000<.05$). It is concluded that there is significant difference with respect to age across distributions of operational excellence, high performance engagement and quality of care.

Kruskal-Wallis rank test indicated that the mean ranks are not similar across experience (Table 12) towards operational excellence (mean rank highest for 20 to 24 years), high performance engagement (mean rank highest for 15 to 19 years) and quality of care (mean rank highest for 15 to 19 years). The Kruskal-Wallis test statistics for experience showed that there was significant difference in experience and the distribution of operational excellence scores ($H=20.048$, $p=.000<.05$), high performance engagement ($H=16.556$, $p=.002<.05$), quality of care ($H=21.012$, $p=.000<.05$). It is concluded that there is significant difference with respect to number of years of experience across the distributions of operational excellence, high performance engagement and quality of care.

Kruskal-Wallis rank test results (Table 13) indicates that the mean ranks are not similar across number of hospital beds towards operational

excellence (mean rank highest for 100-200 beds), high performance engagement (mean rank highest for 100-200 beds) and quality of care (mean rank highest for 100-200 beds). The Kruskal-Wallis test statistics for hospital beds shows that there was significant difference in hospital beds and the distribution of operational excellence scores (H=91.481, p=.000<.05), high performance engagement (H=79.424, p=.002<.05), quality of care (H=73.526, p=.000<.05). It is concluded that there is significant difference with the number of hospital beds across the distributions of operational excellence, high performance engagement and quality of care.

Table 11. Results for Kruskal-Wallis Test for Age

	OE	HPE	QoC
Chi-Square (H)	27.002	16.312	27.987
Df	4	4	4
Asymp. Sig.	.000	.003	.000

Table 12 Results of Kruskal-Wallis Test for Experience

	OE	HPE	QoC
Chi-Square	20.048	16.556	21.012
Df	4	4	4
Asymp. Sig.	.000	.002	.000

Table 13. Results for Kruskal-Wallis Test for Hospital Beds

	OE	HPE	QoC
Chi-Square	91.481	79.424	73.526
Df	4	4	4
Asymp. Sig.	.000	.000	.000

13.1.7. Friedman test

The Friedman test analyses the effect of two factors for a repeated measures type of experiment (Table 14) to determine if a particular factor has an effect. There was a statistically significant difference in operational excellence depending on high performance excellence and quality of care $\chi^2(2) = 601.504$, p=.000. Post hoc analysis was conducted using Wilcoxon signed ranked tests (Table 15) with a Bonferroni correction (significance level at p<.017) applied. There is statistical significance in the measures of operational excellence and high performance engagement (z = -17.352, p = .000) and quality of care towards operational excellence (z = -17.542, p = .000).

Table 14. Friedman test Results

Ranks		Test Statistics	
	Mean Rank	N	410
OE	1.02	χ^2	601.504
HPE	2.49	Df	2
QoC	2.49	As. Sig.	.000

Table 15. Wilcoxon Signed Rank Test Results

	HPE & OE	QoC & OE	HPE & QoC
Z	-17.352[b]	-17.542[b]	-.629[b]
Asy. Sig. (2-tailed)	.000	.000	.529

13.1.8. Scheirer-Ray-Hare Test

The Scheirer–Ray–Hare (SRH) test is a statistical test that can be used to examine whether a measure is affected by two or more factors. There is a

significant (Table 16) main effect of levels of High Performance Engagement towards Operational Excellence (H=16.553, p=0.001<.05), there is a significant main effect of levels of Quality of Care towards Operational Excellence (H=9.761, p=0.003<.05). The interaction effect of levels of high performance engagement and quality of care is significant towards Operational Excellence (H=0.649, p=.007>.05)

Table 16. Results of Scheirer-Ray-Hare Test

Variables	Df	Sum Squares	H	P value
HPE	1	2018384.247	16.553	.001
QoC	1	13656.44003	9.761	.003
HPE*QoC	1	12667.75063	0.649	.007
Residuals	407	2694374.936		

13.2. Qualitative Analysis

The design of the qualitative study and the classification (fig. 1) was based on health consumers, with attributes of gender, age and values as male, female, and age in 30s, 40s, and 50s. The hospital concerning the health consumers were both NABH accredited and Non-NABH accredited.

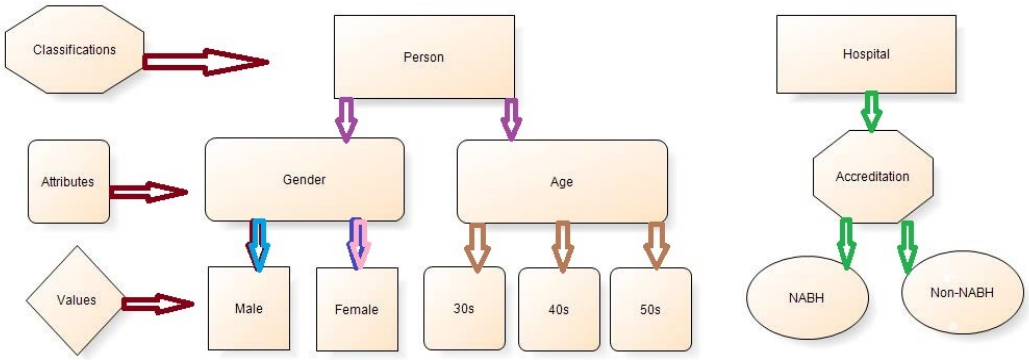

Fig 1. Design of Qualitative Study

Semi structured Interviews were used to collect and document personal experiences of health consumers. The interview schedule was developed through a review of literature and a preliminary exploratory study and then validated through experts.

Table 17. Qualitative Study Format

Initial focus	Rapport building, Health issues
Interview focus	Scheduled Semi Structured Interview Protocol
Second stage	General health; significant hospital experience
Third stage	Care quality processes and patient centeredness
	Health information services
	Electronic Medical Records availability
	Listening of Patient voice
	Patient needs compromised for financial gain
	Patient expectations enquiry, mapping outcome
	Staff health literacy, awareness of communicable diseases, and basic hygiene
	Hospital waste segregation and efficient disposal
	Maximization in quality of care
	Professionalism and empathy
	Non-preference of doctors due to past bad experience
	The frequency of Complains or suggestions given
	Minor oversights ignored
	Hospital preference criteria
	Hospitals visited out of no choice or overall excellence
	Doctor preference (goodwill, attitude, empathy)
Conclusion	Difficulties as a health consumer

The process of data collection was carried out after providing informed consent and a confidentiality agreement to use the collected data only for this study. The process notes and/or details of the observation were kept in track with the research and theme development. The process of analysis was thematic analysis for identifying analyzing and reporting patterns with the data (Braun & Clark, 2006). Qualitative analysis confirms the need for improvement in care quality and the gap between perception and reality. The overview of the Qualitative Study Format is given in Table 17. The design of study was initially to build a rapport with the patients, explain the study focus and confidentiality of data provided with informed consent provided. Patients willingly gave details hoping their sharing to bring a difference to commercialization of private hospitals. The conclusion of the interviews was by sharing about their difficulties as consumers. The analysis was conducted using NVIVO 11. Nodes clustered though total words similarity of quality of care is given in figure 2.

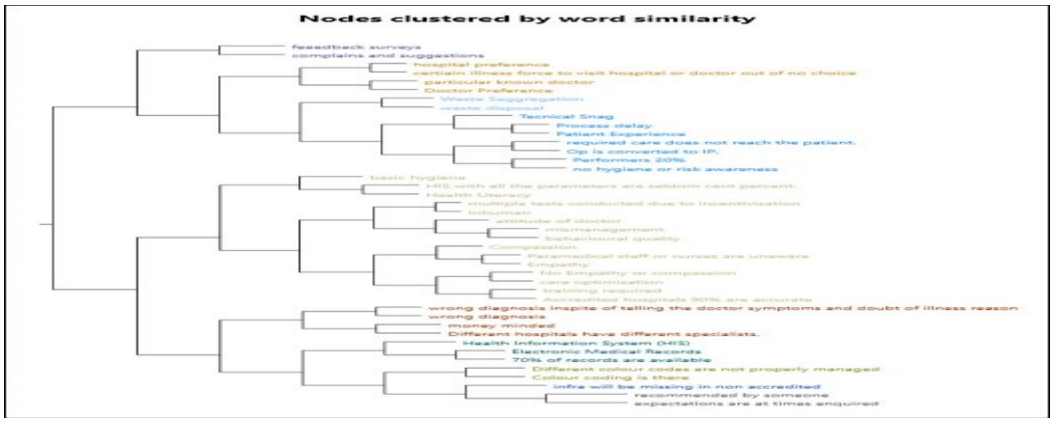

Fig 2. Nodes clustered by Word Similarity through NVIVO Analysis

14. Findings/Discussion

The findings of this study is an enabler for health care management, leaders, employers and employees to understand the health consumer

expectation of quality of care, hospital efficiency and to make a difference in performance with passion, improving care quality and to constantly thrive for sustainable operational excellence. The outcome of the study is a clear response to the research questions and the objectives of this study.

The sectorial representation of this chapter exhibits the demographic details of the sample and the background variable for this study. The sample size for this study was 410, for which the goodness of adequacy was analyzed using the KMO and Bartlett's Test of Sphericity and it was observed that the sampling adequacy is met for larger representation.

The sample represented health care executives from four districts with at least four NABH accredited hospitals in Kerala, South India. Both the male and female gender was considered from NABH accredited and non-accredited hospitals. 58.8% of the samples were males and 41.2% of the samples were females. 143 samples were from NABH accredited hospitals and 267 samples from non-accredited hospitals.

The primary objective of this study was to ascertain the influence of high performance engagement and quality of care on the operational excellence in health care organizations through a valid and reliable questionnaire with rating scales developed by the researcher. The results have been explained.

The correlation between dependent variable and its' dimensions with the independent variables have been explained. This study indicates a significant correlation between the scores of high performance engagement and quality of care towards operational excellence. The study also finds that high performance engagement and quality of care are significant predicators of Operational excellence. This ratifies with the report (Proqis, 2018) that transformation comes first to bring in cultural change and not the other way

round. Whilst operational excellence has an effect on cultural change and it influences sustainability, the report also affirmed that operational excellence cannot be copied from one organization to another, one industry to another and also from industry to service environment, since each organization varies in the operational excellence maturity and copying it to another where the same concept is absurd. Also it varies from industry to service environment. It was also found that the definition of role alignment should have clarity for job transformation, since operational excellence is about people, culture, management and the like, whilst operational excellence initiative and vision has to onboard Human Resources since they are the DNA of the organization to recruit and mold employees to the defined compatible operational excellence behaviour and performance of the organization. This also corroborates with the proposal in 2018 by the three global institutions; WHO, OECD and IBRD, that for sustainable health development Goals, Governments should have national quality policy and strategy, demonstrating accountability for delivering safe, high quality service to ensure reforms are driven by universal health coverage on the foundation of quality care systems (WHO, OECD & IBRD, 2018).

The perceived quality of care by health care executives revealed through quantitative study and the conceived care by health consumers through qualitative study shows that there is a gap between the perceived and conceived care. Qualitative analysis confirms the need for improvement in care quality and the gap between perception and reality. The qualitative study primarily aimed at gathering information from health consumers about quality of care received. The narratives on the experience of care received helped to arrive at gaps from the reason, emotional experiences, they underwent. The narratives throw light on scaling up training of employees for awareness of hygiene, empathy, care optimization, health information

systems, technical upskilling, efficiency of electronic health records, code of conduct, etc. The commercialized approach of private hospitals to make money was also pointed out. The study reiterates the specialized doctor preference over hospitals, their attitude and communication, whilst hospital preference and infrastructure is looked at when out of no choice they have to be in-patients.

This complies with the study, conducted that there is a difference in the Patient/observer perception and expectations and their evaluation of hospitals based on service quality dimensions (Bhardwaj & Chawla, 2013).

The public hospital has better security, accuracy and reliability and reliability aspects. The private hospital has a better rating as far as impressiveness was concerned. Both public and private hospitals were reasonably good on competence, customization and ambience fronts and concluded that the hospital administration need to view service quality from the patient perspective and necessary changes are to be made for this. It also relates to a study wherein Sohail (2003) substantiated that Service Quality and patient satisfaction was found to be important tools for health care outcomes. This quality of care gap in this study, also corroborates with the narrative case of Rodriguez (n.d.), a patient with bad rheumatoid arthritis who had to spent a lot of time in bed, realized that what she had been promoting as health administrator was far different from what she needed as a patient. After her illness she explained the expected quality care as equilibrium between clinical best practices and what is best for the patient determined with the patient since we do not always need doctors who have all the answers but we need people who understand how we are coping with our condition. This also comply with the Universal Health Coverage Goals by 2030 that aspires all people and communities around the globe to be able to have access to high quality health services as per their need whether it is promotive,

preventive, curative, rehabilitative or palliative without much hardships. But if services were unsafe and low quality, health outcomes will be poor even if health coverage and financial protection is achieved. It is evidentially proven that significant resources are wasted with substandard care harming population health, which in turn destroys human capital and productivity. Health service trust is created through Quality of Care and patient safety. The myth of quality is that it is perceived as luxury only the rich can afford. Quality health services can be built from a transparent culture, engagement and result openness. Quality revolution must scale up from the lessons learnt from what works and what does not with adaptation of new ways through technology innovations at affordable costs. People centeredness is the core of high quality with engaged design, delivery and continuous assessment of health services to meet local health needs.

There is no impact of gender on high performance engagement, quality of care or operational excellence. Age, Experience of employees and Hospital beds influence operational excellence, high performance engagement and quality of care. The scores of the independent variables are in a direct and strong relationship with the dependent variable and predict operational excellence among the NABH accredited and non-accredited hospitals in the health care sector.

15. IMPLICATIONS OF THE STUDY

The results of this study points to numerous practical implications in the private health care sector in Kerala, South India. The findings sensify the management to marshal health care employees for high performance engagement and quality of care. The study posits that a combination of high performance engagement and quality of care ministers operational excellence. The constructs of Operational Excellence consisted of Training

and Development, Leadership and Employee Empowerment, Culture and Values, Perceived Operational Excellence, Vanguard Technology, Lean Health Care management. The constructs of High Performance Engagement consisted of Performance Strategies, Willingness and commitment, Team Synergy, Performance Engagement, Employee Motivation.

The constructs of Quality of Care consisted of Value Stream, Patient Centered Approach, Patient Experience, Competitive Advantage, Quality of Care Strategies, Code of Conduct.

The correlation of variables in concern of this study indicates a positive direction and statistical significance between High Performance Engagement and Operational Excellence. This clearly points that high performance engagement is a vital criterion for achieving operational excellence. Performance excellence and employee engagement promotes high performance engagement and leads to operational excellence. Proper employee engagement, by health care management to facilitate high performance is the key. Performance management system linking pay and incentives to performance instead of the current practice of pay for number of medical tests generated and hospital admissions, will aid in promoting performance.

The correlation findings indicate a positive direction and statistical significance between the variables, Quality of Care and Operational Excellence. In health care organizations, patient experience or patient delight is the ultimate outcome. Being a service industry, the service of care is quintessential - patient-centric, safe, efficient, prompt, appropriate, accessible, available, egalitarian, unbiased, compassionate, empathetic, quality of care.

The quantitative and qualitative analysis of this study highlights the lacunae in the perceived and conceived quality of care by the health care executives and health consumers/patients. This study alerts the management to sensitize and train employees for the importance of quality of care to fill this lacuna for favorable attitude towards health consumers and also in all areas of key performance indicators and matrices of the health care organizations.

The correlation findings also imparted a positive direction and statistical significance between the predictor variable High Performance Engagement and the dimension "Training and Development" of observed variable Operational Excellence. Training and Development construct included training strategies, learning cycles of lean health care management, safety and quality of care, the phenomena of clean and organized work place, patient centered sustainable excellence models. Training involves upskilling employees for existing skills and new skills to improve and develop. This will in turn help to bring in homogeneity of skills at an advanced level for performance, behavior, exponential technology, culture and values. Along with these factors, if well-laid strategies for lean health care management, value proposition for health consumers, hygiene, safety, work place organization, patient centeredness, are in existence, overall sustainable operational excellence measures are a given.

The correlation results also imparted a positive direction and statistical significance between the predictor variable High Performance Engagement and the dimension "Leadership and Employee Empowerment" of the observed variable, Operational Excellence. Leadership and employee empowerment construct included continuous feedback to employees, promoting learning culture based on patient value, practicing mix of leadership styles, considering the needs of both employees and patients for

policy decisions. Health care leadership plays a vital role in bringing in reforms, integrating systems, adopting and adapting to exponential technology and innovation in health care, improving efficiency and system performance. Empowerment is the action of bestowing motivation, encouragement, resources, instruments, equipments, training to employees and engaging them to elevate performance to optimum level. This employee empowerment is highly essential in health care, motivating to fasten processes, to address problems as challenges for excellence, to solve problems in a fast pace and inspires to bring about, commitment, loyalty, increased work satisfaction, productivity, quality of work and low turnover options.

The correlation results also imparted a positive direction and statistical significance between the predictor variable High Performance Engagement and the dimension "Perceived Operational Excellence" of the observed variable, Operational Excellence.

The construct perceived operational excellence included service excellence with patient focus, operational effectiveness encompassing patient satisfactions, work environment, patient environment and outcomes. Employee perceptions of operational excellence have to be decided and classified to design training and development to provide strategic guidance to bring in change from perception to variation of effectiveness in operational excellence.

The correlation results also indicated a positive direction and statistical significance between the predictor variable High Performance Engagement and the dimension "Culture and Values" of the observed variable, Operational Excellence. The construct culture and values consisted of clearly defined and communicated behaviours and choices to build

reputation, periodical survey of employee self-reports on strengths and weaknesses, observational and quantifiable operational information measurement metrics. Culture in health care defines the guidelines of patient centered care. Values include all the encompassing attributes of health care, attitude of doctors, health care staff, effective communication, compassion, human respect, interpersonal skills, integrity, reliability, trust, all that is inclusive of patient expectations and high quality of health care.

The correlation results also indicated a positive direction and statistical significance between the predictor variable High Performance Engagement and the dimension "Vanguard Technology" of the observed variable, Operational Excellence. The construct vanguard technology consisted of openness to technological evolution, direct support to workflows and processes, health information system and data analytics as integral part of the core system. Technological advancement and adaptation of exponential technology brings about better outcomes, targeted outcomes and improved, effective treatment options for patient care. This in turn has improved survival for patients and quality of life. Kerala is yet to move into advanced treatment like cryotherapy, mobile apps, big data and the cloud, Patient vitals identification using RFID (Radio Frequency Identification) and many more.

The correlation results indicated a positive direction and statistical significance between the predictor variable High Performance Engagement and the dimension "Lean Health Care Management" of the observed variable, Operational Excellence. The construct lean health care management consists of activity based costing. Lean health care management with its' philosophies of lean and operational procedures helps costs using reduction and long waits for patients. It brings about increased employee involvement,

continuity in improvements, effective practices for care, emphasizing the consideration for health consumer needs.

The correlation findings also imparted a positive direction and statistical significance between the predictor variable Quality of Care and the dimension “Training and Development” of observed variable Operational Excellence. Training and Development construct included training strategies, learning cycles of lean health care management, safety and quality of care, the phenomena of clean and organized work place, patient centered sustainable excellence models. Training involves upskilling employees for providing care, behavioral, attitude and communication, improvements, improve values, basic hygiene, waste segregation, waste disposal, electronic medical records handling, health information system, eliminating process delays, compassionate and empathetic care.

The correlation results also imparted a positive direction and statistical significance between the predictor variable Quality of Care and “Leadership and Employee Empowerment” of the observed variable, Operational Excellence. Quality of Care aids in achieving the expected health outcome in health care organizations and this requires high productivity along with knowledge, skills, passion and commitment to serving humanity. Leadership and employee empowerment are vital for this effort. Leadership needs to translate and transform service to passionate, empathetic and compassionate care with patient focus and expectations, and empower employees for the same.

The correlation results also imparted a positive direction and statistical significance between the predictor variable Quality of Care and “Perceived operational excellence” of the observed variable, Operational Excellence. Health care employees has to conceive that operational excellence is

achieved and sustained through continuous improvement and continuous improvement is achieved through empowered staff, technology, resources and the drive to achieve outcomes through excellent service.

The correlation results also imparted a positive direction and statistical significance between the predictor variable Quality of Care and "Culture and Values" of the observed variable, Operational Excellence. Culture and values are important factors that affect the quality of care in health care organizations. Thus culture has to focus on improving quality and values must emphasize the attitude, behaviours, respectful communication, integrity, honest and trust to create good will.

The correlation results also imparted a positive direction, adequately strong relation, and statistical significance between the predictor variable Quality of Care and "Vanguard Technology" of the observed variable, Operational Excellence. Advanced Technology in health care improves patient-centered-care, reduces prescription errors, enables to keep patient history for precise treatment and reducing treatment errors, improves medical information and communication. It also improves communication between patients and medical care providers. Use of exponential technology will advance medical treatment with precision. But use of exponential technology for advanced medical treatment also requires highly trained health care employees.

The correlation results also imparted a positive direction and statistical significance between the predictor variable Quality of Care and "Lean Health Care Management" of the observed variable, Operational Excellence. Lean health care will improve patient outcome at low affordable cost, health care access to all at affordable cost. Lean can also improve evidence based practices, to improve workflow of clinical practices, since clinical practice

variation undermines good care. The pledge of medical profession, from Hippocratic Oath (n. d), says, to do good or to do no harm; thus inappropriate care can raise the risk of harm, reduces benefits, leads to injury/death to patient. This corroborates with the adversary events due to casual care settings such as delayed diagnosis, failure to timely follow-up, medication errors in primary care; hospital acquired infections, wrong-side surgery, pressure injuries, venous thromboembolism in hospital care; adverse drug events, diagnostic errors, delayed diagnosis and falls common to primary, ambulatory and hospital care (OECD, 2017). Waste in large amounts from different health care segments hike treatment prices limiting access for affordable and accessible care for patients, which has been there for decades together and the only solution is lean health care management.

The results of regression indicate that high performance engagement is a statistically significant predictor of operational excellence. Elevated performance and engagement is crucial for employee engagement and performance excellence to significantly influence the perceived excellence and operational excellence. Such high performance and engagement evolve from efficient leadership, motivation, support, resources, remuneration and positive work environment. This influence will correlate with operational excellence to sustain the same. Thus High Performance Engagement consisting of Performance Strategies, Willingness and commitment, Team Synergy, Performance Engagement, Employee Motivation, helps to develop positive attitude towards patient outcome and in turn operational excellence.

The regression analysis results imply that quality of care is a statistically significant predictor of operational excellence. When quality of care significantly predicts operational excellence, it clearly indicates that perceived quality of care by health care employees, and the conceived quality of care by the health consumers, have to be in sync and significantly affects operational excellence. Thus, the constructs of Quality of Care consisting of Value Stream, Patient Centered Approach, Patient Experience, Competitive

Advantage, Quality of Care Strategies, and Code of Conduct, aids in achieving operational excellence. All the health care employees from doctors, to nurses, paramedic staff, laboratory staff, front line staff and all the care takers and staff in hospital have to collaborate work, skills, knowledge and communication to enhance care processes with high quality. This study involving quantitative and qualitative methods brought out the gap that exists between the perceived and conceived care and it is a call to management to take precautions not to widen the gap and work towards eliminating the gap. Periodic training and training evaluation using Kirkpatrick model of reaction, learning, behaviour, results (Kirkpatrick, 1988) and the revision (Kirkpatrick & Kirkpatrick, 2009), to include relevancy of everyday jobs in training with respect to continuing health education involving activities, events and efforts resulting in recognized and unrecognized knowledge (Ledlow & Coppola, 2014).

The main and interaction effects of high performance engagement and quality of care towards operational excellence also vividly indicates the observed covariance and correlation, which suggests that the health care sector has to improve high performance engagement and quality of care to achieve sustainable operational excellence. Whilst gender showed no significant difference among variables in this study which is a positive indication that gender sensitization in this sector is met, the number of hospital beds, age and years of experience has a significance among variables.

Experienced employees can become role models and training resources for other employees and leadership can motivate experience employees for the same. Pilot units can be formed for each segments of care and become role models for other units and collaborate with each other.

16. SUGGESTIONS FOR FUTURE RESEARCH

The limitations of a study point towards further research prospects. Few of the many research possibilities are stated.

- Study may be extended to other states considering all the hospitals
- The Public health care sector can be studied.
- A comparison of Public and Private hospitals can be carried out
- Longitudinal study to find out how perceptions change over time
- Quasi-experimental research on the same constructs
- Experimental study with pre and post training to improve operational excellence, high performance engagement and quality of care
- The three instruments developed by the researcher for this study which was validated and standardized can be used in future for relevant studies in the health care.

17. LIMITATIONS OF THE STUDY

This cross-sectional study design tried to reduce limitations. Nevertheless, few limitations are identified beyond the delimitations.

All the districts in Kerala could not be covered due to absence of NABH accredited hospitals. This fetched lesser samples from NABH accredited hospitals. The challenges of the study were to get executives for validation for the tool development, permission to survey executives given the busy schedule in the hospitals, possibility of response bias from executives, their concern for privacy of data, to gain the confidence of the patients for interview and sharing their experiences or difficulties as a health consumer.

18. CONCLUSION

Health leaders must motivate employees to provide managed care, since health consumers pay for the access, availability and quality.

Performance excellence and employee engagement are important for this noble profession to elevate performance and engagement to high performance engagement encompassing Performance Strategies, Willingness and commitment, Team Synergy, Performance Engagement, Employee Motivation, helps to develop positive attitude towards patient outcome and in turn operational excellence.

Capacity planning need to include structural changes, in rural and urban areas, creating aspirational impact, medical automation to make life easy for doctors, medical startups to access markets, custom duties leverage for medical start-ups, separate funds for women health entrepreneurs, health start-ups in rural areas, punitive measures and benchmark to international standards and publish indices, comprehensive measures for health stressed district, stand-alone kiosks and health bazaars like Chhattisgarh and Brazilian models.

Quality of care is the vital factor in health care which is the supporting factor for expected patient outcomes. Eliminating waste and lean health care is a critical factor for the survival of health care systems making it affordable, accessible, with less medical errors and treatment protocol. Quality of Care encompassing Value Stream, Patient Centered Approach, Patient Experience, Competitive Advantage, Quality of Care Strategies, Code of Conduct helps improve patient outcomes.

This study presents operational excellence in relation to high performance engagement and quality of care among health care executives.

High performance engagement and quality of care correlate with operational excellence which is a combination of leadership and employee empowerment, training and development, culture and values, perceived excellence, vanguard technology and lean health care management.

The results of this study indicate that high performance engagement and quality of care are significant predictors of operational excellence. Gender of NABH accredited or non-accredited hospitals have no significant difference with respect to the three variables in concern whereas age and experience significantly differ in high performance engagement and quality of care.

The qualitative study among health consumers brings out the gap in perceived quality of care among executives and conceived care through the phenomenology of patients, and the lacuna in the care quality. Thus it provides an area for the management of private hospitals to focus and improve upon to eliminate the gap. This study has brought out the immediate areas to be focused in health care sector to improve quality of care, performance engagement and operational excellence to elevate health care service.

19. TENTATIVE STRUCTURE OF DISSERTATION

Overview of Chapters

Chapter 1. The chapter 1 is 'Introduction', and this introductory chapter gives a formal foundation for the study explaining the background of the study, the theoretical framework, conceptual framework, the main variables of the study, the dependent variables, independent variables, the dimensions of the variables, the research paradigm, need for the study, statement of the problem, research questions to be explored, objectives of the study, assumptions of the study and limitations of the study.

Chapter 2. The chapter 2 is 'Review of Literature'. This chapter presents the existing literature of the study reviewed, also studies segmented as those related to the dependent variable operational excellence, the independent variables high performance engagement and quality of care.

Chapter 3. The chapter 3 is 'Methodology'. This chapter presents the methodology which encompasses the methods and techniques of the study, the preliminary exploratory study, the tool development procedures, operational definitions of the variables used for the study, standardization of the tools of the study, pilot study, sampling design including the sampling method, sampling framework and the samples and data collection procedure.

Chapter 4. The chapter 4 is 'Results and Discussion'. This chapter explains the results of the study, statistical analysis and inference of the results from the statistical analysis. The detailing of quantitative analysis and its' inference, and qualitative study results is provided in this chapter. The statistical analysis used such as to check the normality of data distribution,

spearman's correlation, regression analysis, Mann-Whitney U test, Kruskal-Wallis test, Friedman's test, Scheirer-Ray-Hare test and their inferences are clearly stated

Chapter 5. The chapter 5 is 'Summary and Conclusion'. This chapter provides a succinct summary of this research study, vividly stating the study focus, findings, results, health care implications, limitations, future research prospects.

The dissertation also provides a reference list of literatures reviewed and used for the study, along with appendix of abbreviations, proforma, informed consent, semi-structured interview format for qualitative study and tools developed by the researcher for quantitative survey.

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APPENDIX

APPENDIX A

Publication

Nair, S. S., & Thomas, K. A. (2020). Relationship between Leadership Support and Operational Excellence in Health Care Sector: A study of Indian Health Care Managers*, Journal of Healthcare Quality Research; 35(2)* https://www.journals.elsevier.com/journal-of-healthcare-quality-research,.

International Conference

Nair, S. S., & Thomas K.A. (2019). *Graph Theory and its Application in Management Research*, CHRIST University, Department of Mathematics, International Conference on Emerging Trends in Graph Theory, ICETGT 2019

Nair, S. S., & Thomas K.A. (2019). *Harnessing Technology for Lean Health Care Value Management*, CHRIST University, Deanery of Commerce and Management, ACC- UK, CIMA, UK, 6-7 Feb, 2019

Nair, S. S., & Thomas K.A. (2018). *Operational Excellence: A Sustainable Synergy to Excel*, (Synthesize 2018, School of Business Studies & Social Sciences, Christ University- BGR & HAN University of Applied Sciences, Netherlands)

Nair, S.S. (2019). *Operational Excellence: Process Methodology or Business Excellence*, (Bangalore University and Lincoln College, Malaysia, January 28, 29, 2019)

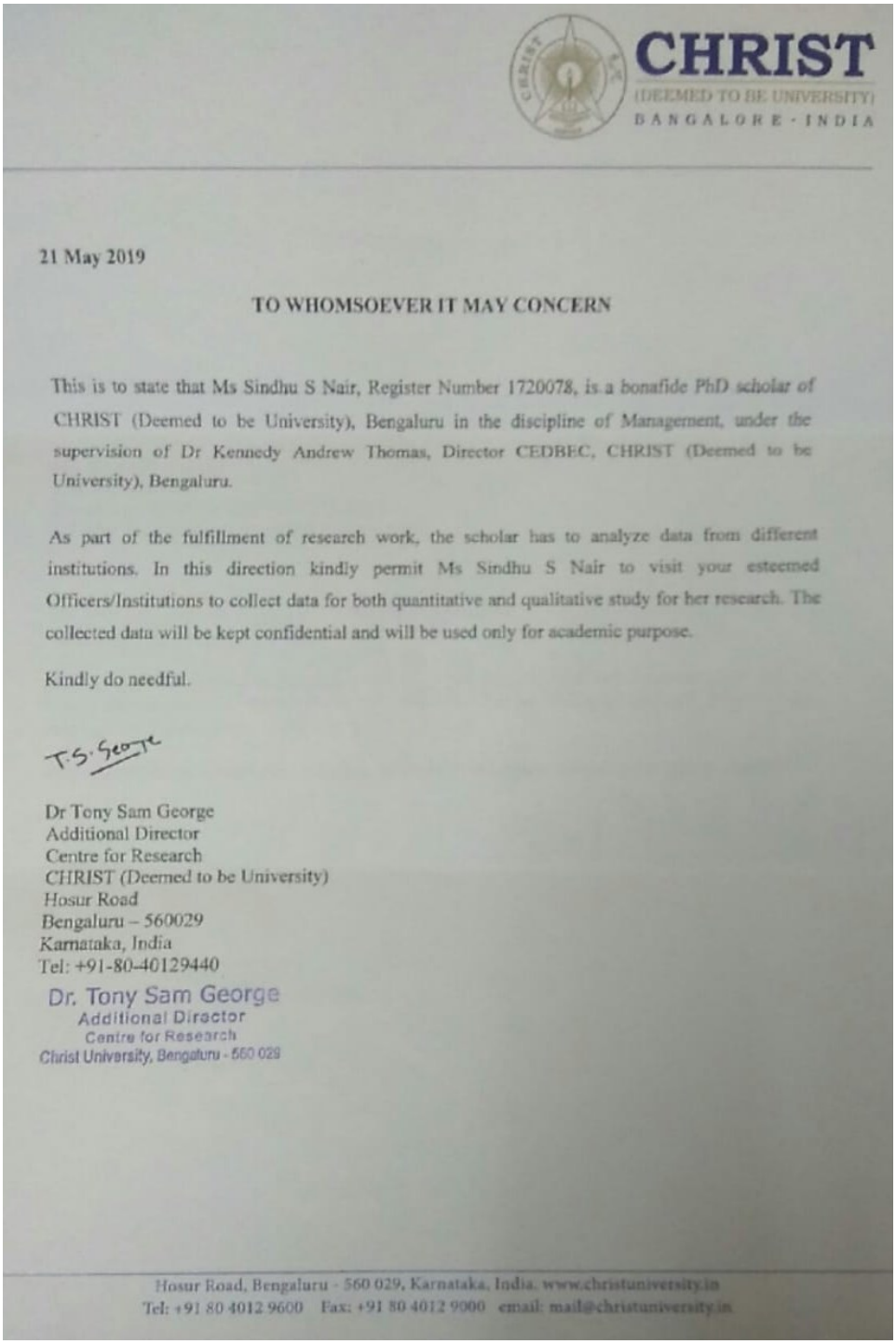
National Conference

Nair, S. S., & Thomas K.A. (2018). *Big Data, for the future Transformation in the Healthcare Sector*, CHRIST National Level Media Seminar, July, 27-28, 2018

Nair S.S., & Thomas K.A. (2018). *Leadership Scorecard*, CHRIST, Department of Management Studies, Feb, 2018

Nair, S. S., & Thomas K.A. (2018). *Art and Creative Movement Therapy for Quality of Life of a Patient*, CHRIST National Level Seminar, Sep, 14, 2018; Department of Performing Arts

APPENDIX B



CHRIST
(DEEMED TO BE UNIVERSITY)
BANGALORE - INDIA

21 May 2019

TO WHOMSOEVER IT MAY CONCERN

This is to state that Ms Sindhu S Nair, Register Number 1720078, is a bonafide PhD scholar of CHRIST (Deemed to be University), Bengaluru in the discipline of Management, under the supervision of Dr Kennedy Andrew Thomas, Director CEDBEC, CHRIST (Deemed to be University), Bengaluru.

As part of the fulfillment of research work, the scholar has to analyze data from different institutions. In this direction kindly permit Ms Sindhu S Nair to visit your esteemed Officers/Institutions to collect data for both quantitative and qualitative study for her research. The collected data will be kept confidential and will be used only for academic purpose.

Kindly do needful.

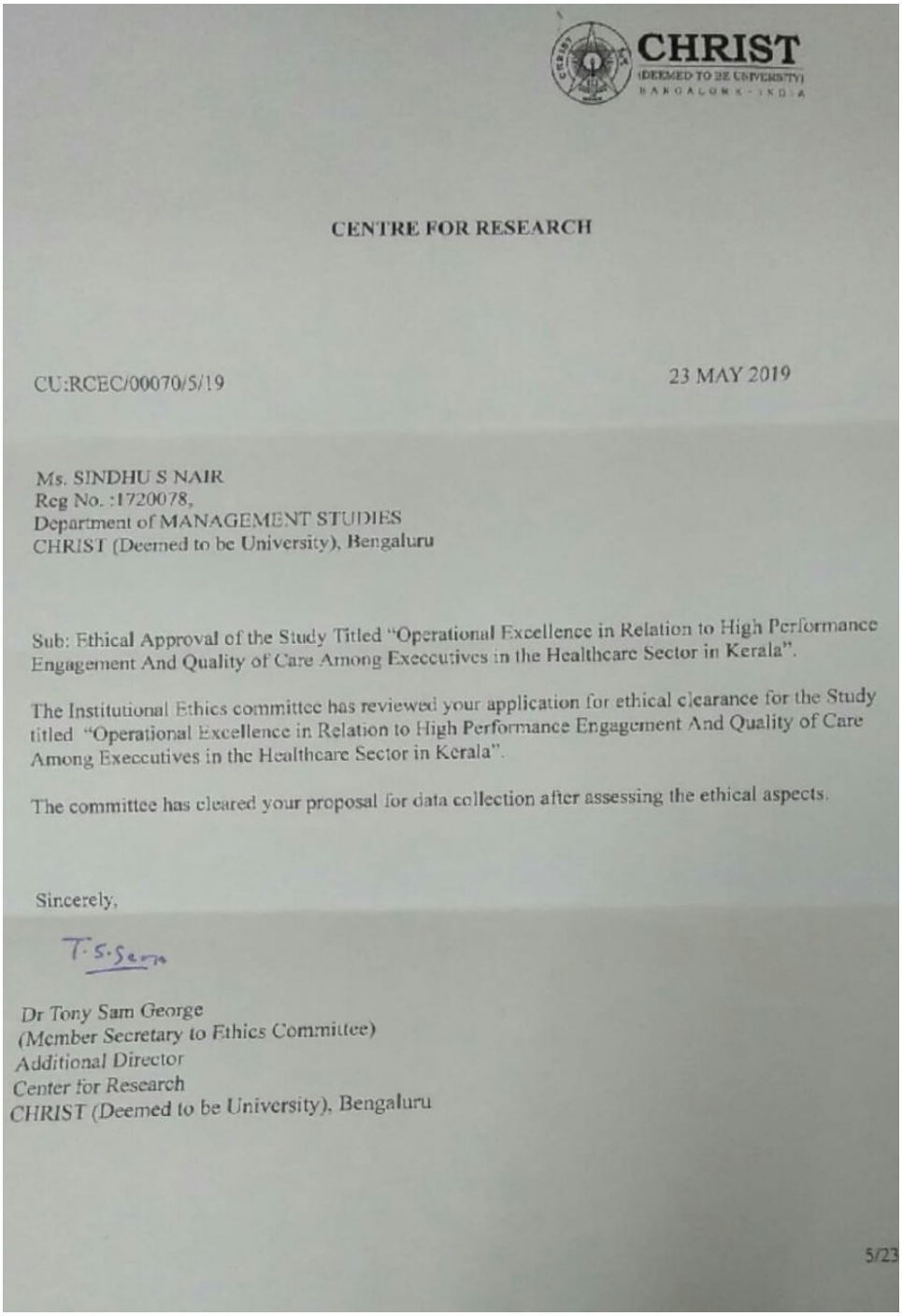
T.S. George

Dr Tony Sam George
Additional Director
Centre for Research
CHRIST (Deemed to be University)
Hosur Road
Bengaluru – 560029
Karnataka, India
Tel: +91-80-40129440

Dr. Tony Sam George
Additional Director
Centre for Research
Christ University, Bengaluru - 560 029

Hosur Road, Bengaluru - 560 029, Karnataka, India. www.christuniversity.in
Tel: +91 80 4012 9600 Fax: +91 80 4012 9000 email: mail@christuniversity.in

APPENDIX C



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BANGALORE - INDIA

CENTRE FOR RESEARCH

CU:RCEC/00070/5/19

23 MAY 2019

Ms. SINDHU S NAIR
Reg No. :1720078,
Department of MANAGEMENT STUDIES
CHRIST (Deemed to be University), Bengaluru

Sub: Ethical Approval of the Study Titled "Operational Excellence in Relation to High Performance Engagement And Quality of Care Among Execcutives in the Healthcare Sector in Kerala".

The Institutional Ethics committee has reviewed your application for ethical clearance for the Study titled "Operational Excellence in Relation to High Performance Engagement And Quality of Care Among Execcutives in the Healthcare Sector in Kerala".

The committee has cleared your proposal for data collection after assessing the ethical aspects.

Sincerely,

T.S.Sam

Dr Tony Sam George
(Member Secretary to Ethics Committee)
Additional Director
Center for Research
CHRIST (Deemed to be University), Bengaluru

5/23

APPENDIX D

Informed consent

Dear Sir or Madam,

I am pursuing PhD in Management from CHRIST (Deemed to be University), Bangalore, under the guidance of Dr Kennedy Andrew Thomas. The title of my study is "Operational Excellence in relation to High Performance Engagement and Quality of Care among Executives in the Health Care Sector in Kerala". In this regard, I request your help for data collection for this study. Kindly go through the items of the three Questionnaires as per the instructions given. The data collected is only for research purpose and will be confidential. If you have any suggestions or remarks, please mention it at the end of each questionnaire. I would be much obliged for the support extended.

Thank you

Best Regards

Sindhu S. Nair

Signature of the Guide

Dr Kennedy Andrew Thomas